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Gender Participation in Fish Harvesting Activities in Catch-Locations in Lagos State Nigeria: A Tool for Food Security and Sustainability

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Abstract
This study examined gender participation in fish harvesting activities in catch-locations in Lagos state Nigeria. This paper was based on the gender participation in fishing activities within the coastal areas of Lagos State with five study locations; Ikorodu, Badagry, Epe, Lekki and Makoko in Lagos State, Nigeria. Data for the study was collected through structured questionnaire. Chi-square analysis (x^2= 22.6, df 2) revealed that gender participation was significantly different (P<0.05) thereby rejecting the null research hypothesis (H_o). Result obtained revealed that majority (85.0%) of the respondents were between 26 – 55 years of age, with the mean age of 45.2years, most (75.0%) of the respondents were males and most (75.0%) of the respondents were married, while majority (81.7%) of the respondents had one form of formal education. Mean year of fishing experience was 15.6years, with the mean household size of 5persons. The study showed that several fish species were harvested in the coastal area which includes; tilapia, catfishes, mullet and crayfish among others. It was established that majority (80.0%) of male and few (10.0%) of female participating in fish harvesting sector regarded it a family business. Majority of the challenges confronting fish harvesting sectors were flooding during rainy season, high cost of production, lack of labour, high cost of labour, high tide and others inclusive. The study concludes that male actively participates in fish harvesting activities more than female counterpart in the study area either as a family business, for sustenance purpose or due to personal interest. It therefore recommends that challenges facing gender participation in fishing activities need to be tackled head-on so as serve as a tool for sustainability and effective exploitation of fisheries resources.
Keywords: Gender, Fish, Harvesting, Sustainability, Catch- Location

1. Introduction

The fisheries sector in developing countries is recognized as one of the most economically depressed sectors in society (Williams *et al*., 2002). The dependence on fisheries is acute at both regional and local levels and for poor and marginalized populations in particular (Coulthard *et al.*, 2011; FAO, 2009; Béné *et al*., 2007). Artisanal fisheries provide fishing families with fish products for food as well as income generating strategies for survival. While the contribution of fisheries to food security and livelihoods is difficult to quantify at a global scale due to inadequate data, we do know that millions of people globally are directly dependent upon fishing for their livelihoods and many more depend on protein rich fish as a basis for their food security (Allison *et al*., 2009). In Africa, the fish sector provides income for over 10million people engage in fish production, processing and trade (NEPAD, 2005). Fishing, like any other hunting activities has been a major source of food for human race and has put an end to the unsavory outbreak of anemia, kwashiorkor and so on. Fish is one of the most diverse groups of animals known to man with more than 20,500 species in existence; there are more species of fish than any other vertebrates (Eyo, 1992).

Food and Agricultural Organisation (FAO) reported in 2009 that over 95% of the world's 200 million fisher folk (fish catchers, processors and traders) live in Asia, Africa and Latin America where over 60% of the global fish catch originates. During the past three decades, the number of fishers has grown at a faster rate than the world's population (Coulthard *et al*., 2011). Bennett (2005) reported that the role of fisheries is a critically important, but largely overlooked aspect of development throughout the developing world. Catches in many areas are falling, resource rents continue to be dissipated, although some development indicators have improved, the pursuit of sustainable livelihoods in fishing communities remains elusive in many places in the world. The industry produced over 85,000 tons of fish in 2007 (FDF, 2008). It accounts for about one fifth of world total supply of animal protein and this has moved up five folds over the last forty years from 20 million metric tons to 98 million metric tons by the year 1993 and projected to exceed 150 million metric tons by the year 2010 (Oladejo, 2010). Fish farming also generates employment directly and indirectly in terms of people employed in the production of fishing output other allied business. An estimated 43.5 million people were directly engaged (part time or full time) in primary production of fish either in capture from the wild or in aquaculture representing 3.2 percent of global 1.37 million people in active agriculture and a further 4 million people were engaged on an occasional basis (F A O, 2009)[b].

Gender is a term often associated with roles and responsibility of males and females in the society as a

social classification of sex. It is a concept used in social science analysis to look at roles and activities of men and women (IITA, 1996). Russo *et al* (1989) cited by Olawoye (1993) defined gender as a socio-economic variable which assisted the researcher to analyse the roles, responsibilities, constraints and opportunities of both men and women. Gender refers to the attitudes, feelings, and behaviors that a given culture associates with a person's biological sex (APA, 2011). Buckland and Halegoah (1996) affirmed that men and women had certain inevitable roles and responsibilities which they performed in the society. Though Oakley, as cited by Ekong (2003), concluded that no tasks were gender specific except child bearing. The 1996 World Food Security Declaration recognized women are the primary users and potential stewards of many natural resources that provide the means for basic survival.

In Nigeria, the fisheries sector accounts for about 2% of national GDP, 40% of the animal protein intake and a substantial proportion of employment, especially in the rural areas; the sector is a principal source of livelihood for over three million people in Nigeria. Production in fisheries is traditionally considered masculine and women roles considered complementary (Akpaniteaku *et al*., 2005). This study is to identify the clear and specific roles that men and women play across small scale fisheries in harvesting activities in the study area as a tool for food security and sustainability in Nigeria. The specific objectives of the study were to: describe the socio-economic characteristics of the respondents, determine the kinds of fish(es) been harvested by the respondents, determine the equipment used in harvesting activities, ascertain the gender reasons for participation in fish harvesting sectors and examine the challenges confronting fish harvesting sectors in the study area.

1.1 Hypotheses

Ho = There is no significant difference in gender participation in fish harvesting activities in catch-locations in Lagos

Ha = There is a significant difference in gender participation in fish harvesting activities in catch-locations in Lagos

2. Methodology

2.1 Study Area

The study was carried in coastal zones of Ikorodu, Badagry, Epe, Lekki (Ibeju-Lekki) and Makoko (Lagos Mainland) in Lagos State, Nigeria as shown in figure 1. The State is situated in the Southwestern geo-political zone of Nigeria. It shares its boundaries with Ogun State with its northern and eastern borders and to her west is the border of Benin Republic. Its Southern border stretches for about 180 kilometers (km) along the coast of the Atlantic Ocean. The State occupies an area of 3,577 km² landmass of 786.94 km² which is about 22 percent of it being the Lagos lagoons. This makes the State very rich in different forms of aquatic ecological zones that support different varieties of fish species and aquatic organisms thereby providing productive fishing opportunity for fishermen/women.

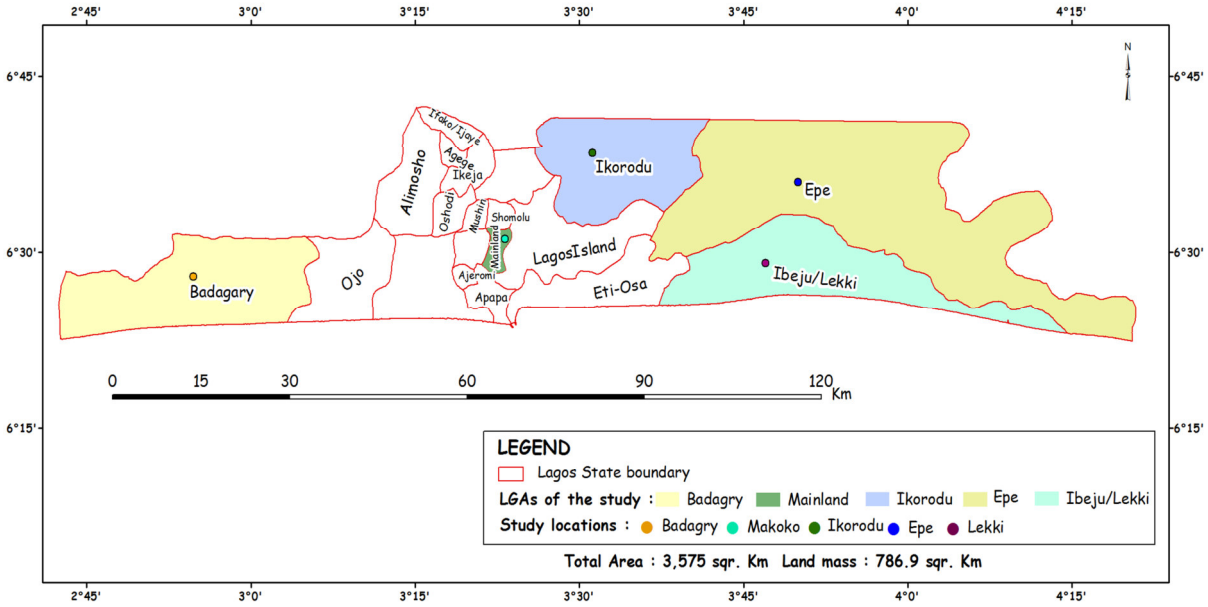

Figure 1: Map of Lagos State showing the study locations.

2.2 Sampling Techniques and Sample Size

The population of the study comprised of both men and women in coastal area of Lagos State. Purposive probability sampling procedure was used in selecting the respondents for the study. This was based on the fact that fish farming is peculiar to the coastal area at the time of collection of data; also there is no comprehensive list of the respondents which could have serve as basis for the study. Twelve (12) respondents of equal gender were selected from each of the five (5) catch-locations of the study area which gives a total sample size of sixty (60) respondents. The information scope of the questionnaire was based on the socio-economic characteristics of the respondents, determine the kinds of fish been harvested by the respondents, ascertain the gender reasons for participation in fish harvesting sectors and determine the gender challenges confronting fish harvesting sectors in the study area. Reasons for participation in fish harvesting sectors and challenges confronting fish harvesting sectors were measured using two (2) point rating scale of yes (1) and No (0).

2.3 Method of Data Analysis

Data collected were subjected to descriptive and inferential statistical analyses. Descriptive statistics such as frequency count, percentage distribution table and graphs were used. Inferential statistical tool such as Chi-square was used to determine gender participation at 0.05 level of significant difference.

3. Result and Discussion

3.1 Socio-economic characteristics of the respondents.

The mean age of the respondents was 42.5years (Table 1). Majority (85.0%) of the respondents were between 26 – 55 years of age, thus revealing the presence of respondents that are still economically active. This is in tandem with the report of Ande (2008) that fish farmers within this categorization are likely to adopt improved technologies that have been proven or have the potential to lead to increased income and improved productivity. Most (75.0%) of the respondents were males while one quarter (25.0%) were females, in line with the findings of Omitoyin and Tosan (2012) who reported the dominance of the male fisher folks in fish harvesting activities more than their female counterpart in Lagos State; further agreed with the findings of Akpaniteaku *et al* (2005) that women role in fisheries is complementary. Most (75.0%) of the respondents were married, this implies that marriage is also cherished by the sampled fish farmers, this supports the work of Baruwa *et al.,* (2012) who reported that majority of fishermen in Lagos State were married. Majority (81.7%) of the respondents had one form of formal education or the other ranging from primary to tertiary education. The findings of this study further showed that most (63.3%) of the respondents had between 4 – 6 member in their households. Riedmiller (1994) reported average family size of six children per woman in fisheries sector of Lake Victoria. The size of the family is a direct factor to the level of responsibilities carried by the women. According to Odulate, *et al*., (2011), wives of the fishermen buy fish from their husbands and smoke them before taking them to the markets. Consequently, the fishermen tend to marry more than one wife so that they can have enough hands to take care of their catch. Most (75.0%) and 25% of the respondents make fishing activities in the study location a major and minor occupation respectively. Year of experience in fishing activities revealed that most (70.0%) of the respondents had been in the business for 11years and beyond.

Table 1: Distribution based on socio-economic characteristics of the respondents. (n =60)

Variables	Frequency	Percentage	Mean(x)
Sex			
Male	45	75	
Female	15	25	
Age (years)			
Less than or equal 25	5	8.3	
26 – 35	7	11.7	
36 – 45	20	33.3	
46 – 55	24	40.0	42.5years
Above 56	4	6.7	
Marital status			
Single	8	13.3	
Married	45	75.0	
Widowed	5	8.3	
Divorced	2	3.4	
Household Size (persons)			
1 – 3	15	25.0	
4 –6	38	63.3	5.2persons
7 –9	2	3.4	
Above 10	5	8.3	
Educational status			
No formal education	11	18.3	
Primary education	25	41.7	
Secondary education	15	25.0	
Tertiary education	9	15.0	
Fisheries as major occupation			
Yes	45	75.0	
No	15	25.0	
Fish Farming experience (years)			
Less than or equal to 10	18	30.0	
11 – 20	26	43.3	15.6years
21 – 30	11	18.3	

3.2 Kinds of fish harvested by the respondents

Based on multiple responses from the respondents, figure 2 revealed that various kinds of fish are in the coastal area of Lagos State, Nigeria. Fish harvested includes tilapia and ranked 1st, catfish ranked 2nd, mullet ranked 3rd, and crayfish ranked 4th. This kinds of fish caught in the coastal area of Lagos State are well popular and consume by many people in the study area and beyond. Also "*Oje", "Sole",* Snake fish, Grunters and Ethmalosa ranked 5th of fishes harvested by both male and female. Fish such as "*Isheke", "Roro", "Obokun",* and Baracuda were ranked 6th while Croaker and Crabs ranked 7th. The least fishes caught by the respondents were "*Abo", "Cuta"* and Red snapper which ranked 8th among all fish caught in the study area.

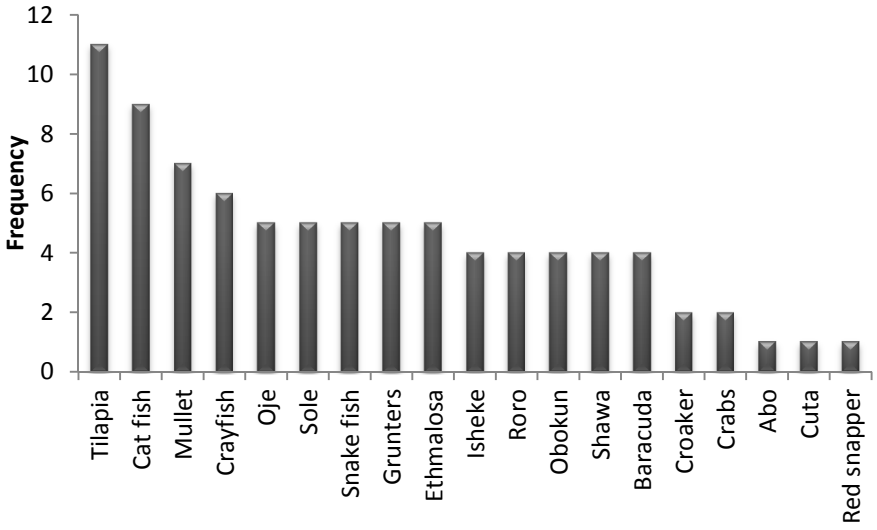

Figure 2: Kind of fish mostly caught

3.3 Equipment used in fish harvesting activities

Based on multiple responses, figure 3 showed the equipment with which the respondents engaged in their harvesting activities. These include fishing net which ranked 1st, canoe boat ranked 2nd, bowls, engine, baskets, longpole and passive gear all ranked 3rd, while jutebags, floaters, wire mesh and Akeja also ranked 4th. Paddle, scale and others ranked 5th.

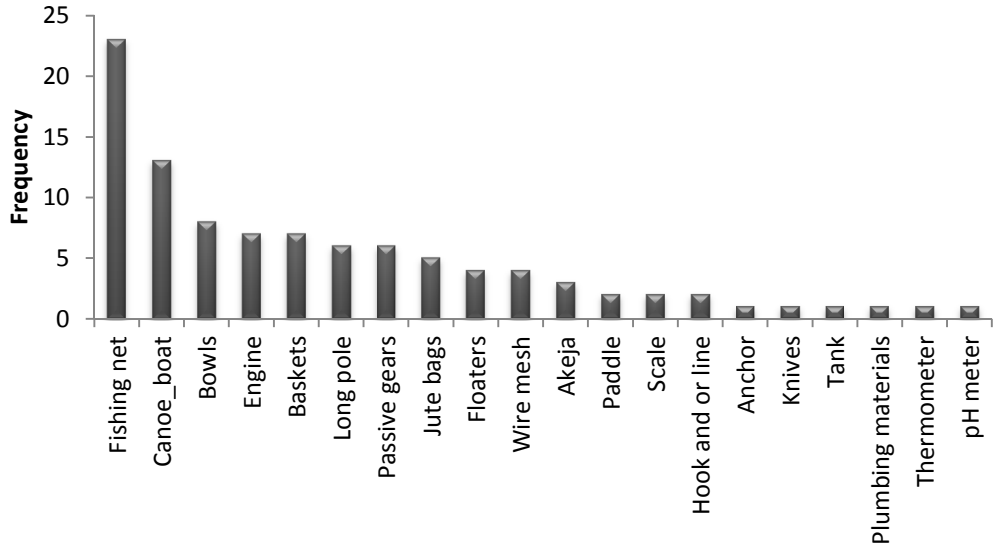

Figure 3: Equipment used in harvesting activities

3.4 Gender reasons for participation in fish harvesting sector

Based on multiple responses, Figure 3 elicits gender reason(s) for participation in fish harvesting sectors in the study area. Gender reason(s) for participation differ, these reasons varied from family business, traditional, sustenance, personal interest, market opportunity, capital and experience. The result showed that majority (80.0%) of male participate in fish harvesting sector due to family business and as a traditional work inherited from parent while 10% and 30% of female participate in fish harvesting sector as family business and traditional work inherited from parents respectively. It was noted that only 40% of male participates in fish harvesting sector as a method of sustenance and personal interest in the sector. Based on the marketing opportunity that fishery sector has gained over the years only 40% and 10% of male and female participates. Participation due to capital and experience gathering revealed that only 20% and 30% of male and female respectively are involved. These diverse reasons for gender participation in fisheries is in agreement with Medard *et al.,* (2001) who reported that participation in fisheries has been spurred by cultural, social, economic and political factors.

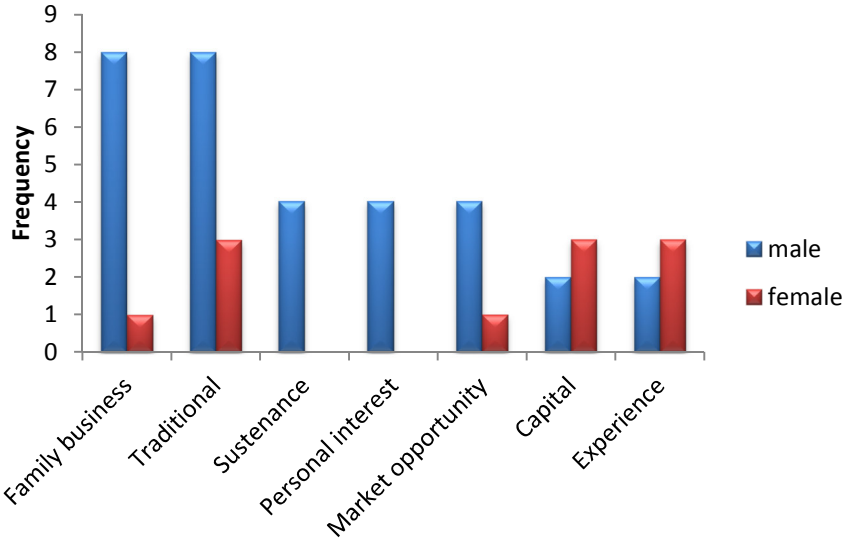

Figure 4: Gender Reasons for participation in fish harvesting sector

3.5 Gender challenges confronting fish harvesting sector

Multiple responses from the respondents revealed that both gender in the study area were faced with various challenges as presented in Table 2. Majority of the challenges confronting fish harvesting sectors were flooding during rainy season (98.3%), high cost of production (95.7%), high cost of labour (85.0%) and high tide (80.0%). Other challenges confronting fish harvesting sectors were seasonality (75.0%), land dispute (68.3%) and problem of finance (60.0%). uncontrolled fishing activities in the study area (53.3%), loan associated problems (45.0%) and shortage or scarcity of inputs (43.3%) also constitute challenges confronting fish harvesting sector. Studies from Clucas (1981), Osi, (2008) and Mbaba (2008) reported that illiterate fisher folks find the operation and management of fishing equipment a great challenge in itself. Some of the women lack self confidence in operating the equipment.

Table 2: Gender challenges confronting fish harvesting sectors

Challenges*	Male	Female	Total (%)
	Frequency (%)	Frequency (%)	Frequency (%)
Water hyacinth	7 (11.7)	10 (16.7)	17 (28.3)
High tide	23 (38.3)	25 (41.7)	48 (80.0)
High cost of production	30 (58.3)	28 (51.7)	58 (96.7)
Problem of finance	21 (35.0)	15 (25.0)	36 (60.0)
Loan associated problems	15 (25.0)	12 (20.0)	27 (45.0)
High cost of labour	28 (46.7)	23 (38.3)	51 (85.0)
Lack of labour	25 (25.0)	30 (50.0)	55 (91.9)
Sand diggers	10 (16.7)	12 (20.0)	22 (36.7)
Shortage or scarcity of inputs	15 (25.0)	11 (18.3)	26 (43.3)
Uncontrolled fishing activities	18 (30.0)	14 (23.3)	32 (53.3)
Destruction of net by water mammal	4 (6.7)	8 (13.3)	12 (20.0)
Seasonality	20 (33.3)	25 (41.7)	45 (75.0)
Land dispute	22 (36.7)	19 (31.6)	41 (68.3)
Water pH problem	5 (8.3)	4 (6.7)	9 (15.0)
Flooding during rainy season	31 (60.0)	28 (63.3)	59 (98.3)

4. Conclusion and Recommendations

4.1 Conclusion

In the light of the findings of this study, it is clear that more male fish farmers engaged in fish harvesting activities more than their female counterparts in the catch-locations, by implication, fish farming activities are gender sensitive/biased. The bulk of those involved in aqua-cultural business are able bodied men in their active age. Hence, the state has potential to sustained fish farming for many more years. Most of the farmers operate on a small scale, as they are just able to raise funds through their meager personal savings, which implies that they cannot expand the scope of their business, and so cannot reap scale economies.

4.2 Recommendations

1. Co-operative organization becomes imperative in order to encourage farmers who source capital from personal savings as this will help alleviate their financial problem.
2. Policy maker should also place more emphasis on credit facility policies toward agricultural production in general and fisheries in particular; such include Agricultural Credit Guaranteed Scheme Fund which ensured credit availability to the farmers and taking care of tangible proportion of any default

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